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A NEW PSAPHODESMINE GENUS FROM NEW GUINEA (POLYDESMIDA: PLATYRHACIDAE)

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ABSTRACT

Petalorhacus is proposed as a new genus to accomodate the type species *P. morobe*, from Morobe District, Papua New Guinea. This species is similar to *Psaphodesmus* and *Parazodesmus* in having five telopodite processes and enlarged, penicillate coxal setae, but differs from these and other psaphodesmine taxa in having processes a, b, and c originating from a very short common stem, all three widely separated and c laminately enlarged; apex of d expanded and lobed.

INTRODUCTION

Resumption of a long-deferred revision of the Papuan milliped group Psaphodesmini has recently produced treatments of the genera *Parazodesmus* ("Steenstrupia", in press) and *Ozorhacus* (in MS). Progress toward definition of psaphodesmine genera has been accomplished by adoption of fairly exclusive criteria involving the number, shape, and position of projections on the gonopod telopodite, which vary from one to five, following establishment of serial homologies of these processes among the various genera of Platyrhacidae. A detailed account of this situation is provided in my forthcoming revision of *Parazodesmus*. While the resulting species groups appear to be defensible monophyletic units, inhabiting cohesive ranges, their relative evolutionary status has not yet been adequately ascertained. It has so far been difficult to identify numbers of processes lower than five as incomplete derivatory stages, or as the results of reduction from an original number of five. Both addition and loss events could be operational concurrently within this single tribe. As the Indonesian platyrhacid fauna becomes better known, resolution of such questions will become feasible.

I am much indebted to my friend and colleague Jürgen Gruber, Naturhistorisches Museum, Vienna, for the loan of the specimens upon which the new species is based.

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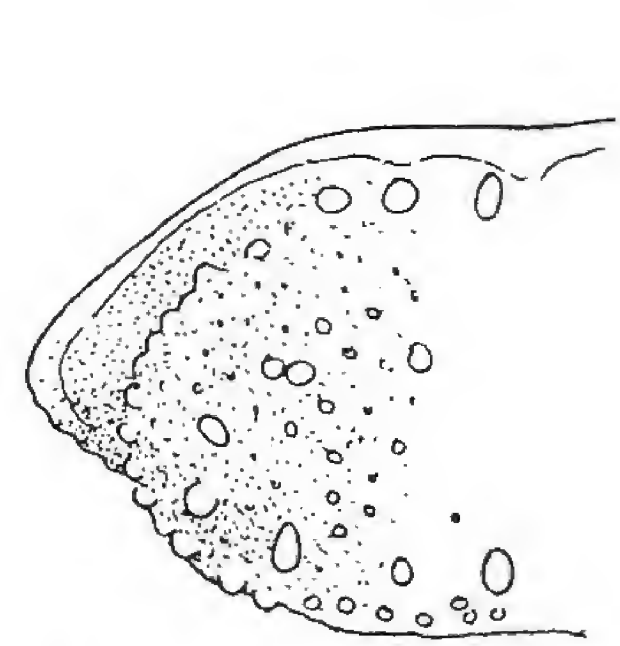

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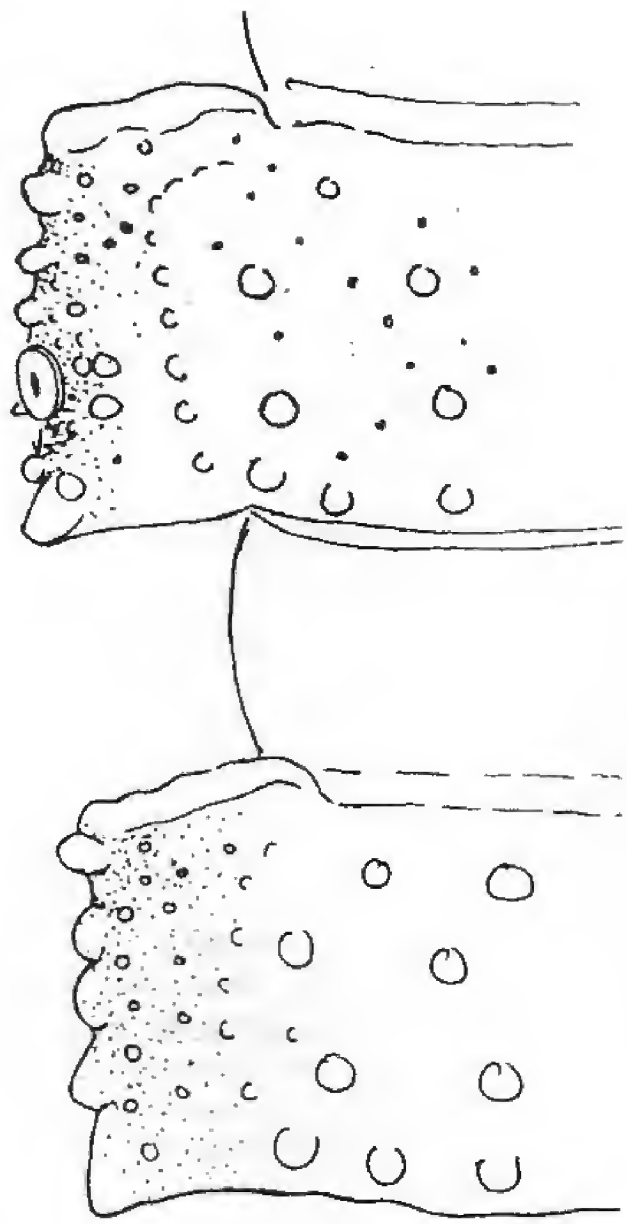

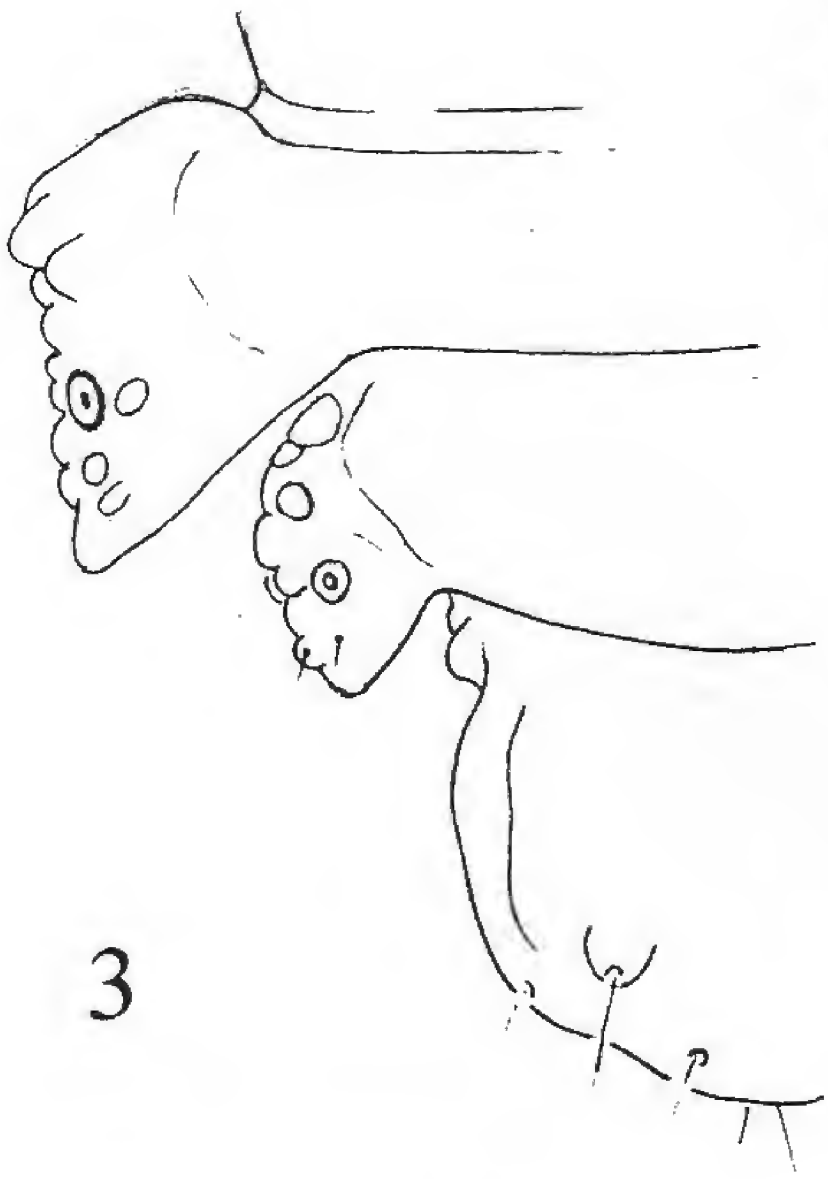

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Petalorhacus morobe, n. sp. Fig. 1. Left side of collum, dorsal aspect. Fig. 2, Left paranota of segments 10 and 11, dorsal aspect, showing marginal position of peritreme. Fig. 3. Left side of segments 18 and 19, and epiproct.

TAXONOMY

Tribe Psaphodesmini

Psaphodesmini (as subfamily) Cook, 1896, Brandtia, no. 1, p. 4.—Hoffman, 1980, Classification of the Diplopoda, p. 180.

Diagnosis: Apical processes of gonotelopodite variable, ranging from two to five, but all clearly derivable from basic parazodesmine pattern (five unmodified subsimilar processes) by loss or modification in shape and location of, the four subtending the solenomere. Body form variable, typically small, to moderate in size (length 40-60 mm long), dorsum relatively convex in most species with metaterga coarsely granular and ornamented with transverse series of rounded tubercles; paranota typically small and declivent, ozopores located on or near the lateral edge; sterna normally unspined; epiproct broadly rounded.

Components: *Parazodesmus* Pocock, *Psaphodesmus* Cook, *Zodesmus* Pocock, *Pleorhacus* Attems, *Ozorhacus* Attems, *Erythrhacus* Hoffman, *Petalorhacus*, n. gen.

Range: Papuan region from Luzon and Sulawesi east to the Pelieu and Solomon islands (thus east of Wallace's Line), with the greatest diversity occurring on New Guinea.

Petalorhacus, new genus

Type species: *P. morobe*, new species.

Name: A neologism composed of the Greek elements *petalon* (leaf) + *-rhacus*, a combining stem commonly used in the formation of generic names in this family; suggested by the somewhat leaf-like form of the (a+b+c) structure on the gonopod telopodite. Masculine.

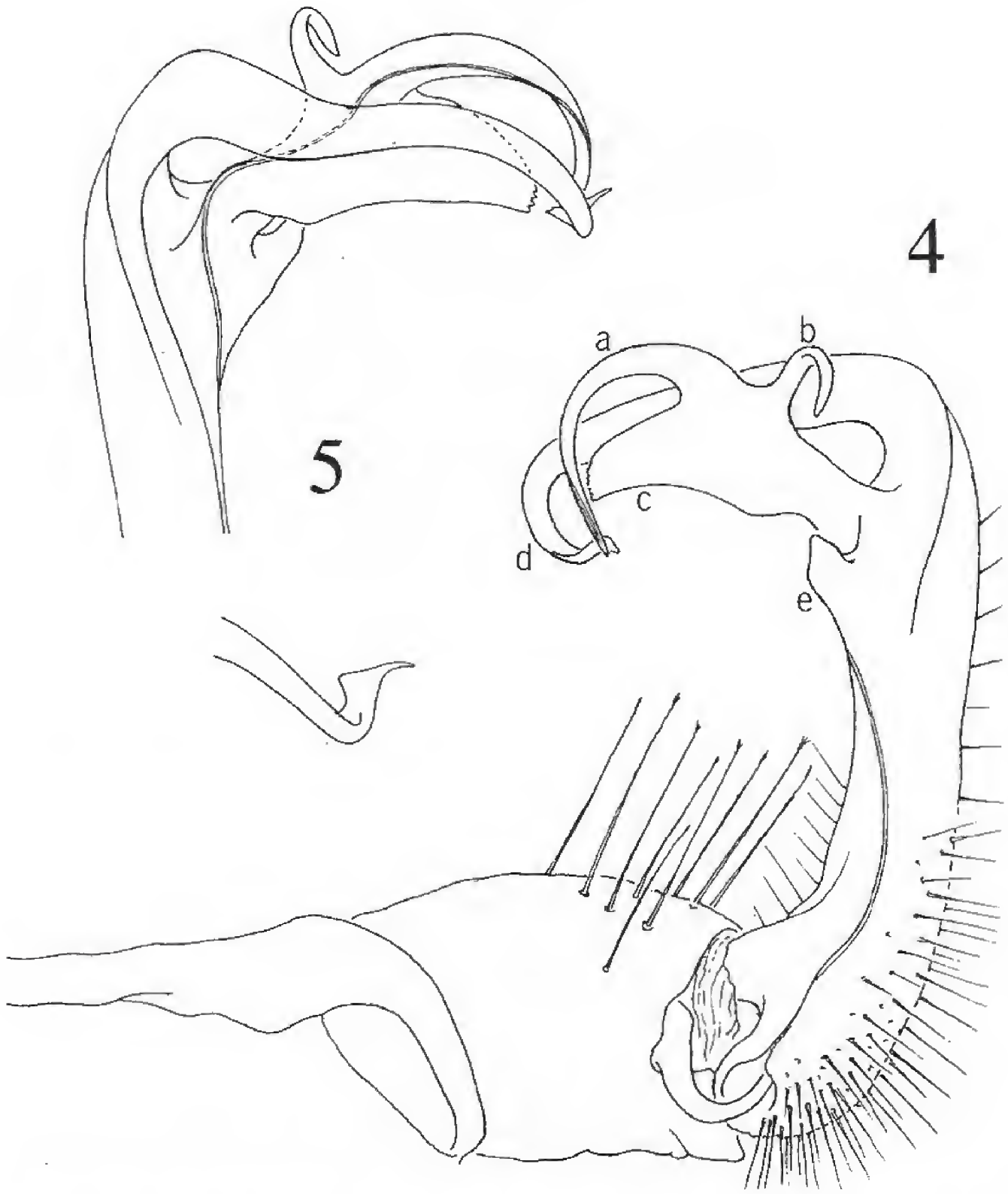
Diagnosis: The single species referred to this genus differs from all known psaphodesmine taxa by the configuration of telopodite processes, of which c is so enlarged as to dominate the common (a+b+c) stem and displace a and b from their usual position; process e is present; process d is large, extending beyond the end of (a+b+c), and subapically lobed instead of simply acuminate. Gonocoxae with a small field of penicillate macrosetae on the dorsal side.

Range: Known only from the type locality of the type species.

Remarks: All five telopodite processes are present in only two other genera of Psaphodesmini, *Parazodesmus* (Pocock, 1897) and *Psaphodesmus* (Cook, 1897). Enlarged penicillate coxal setae also occur in both these genera, to which comparisons may be restricted.

In both genera mentioned, processes a, b, and c are localized at the end of a long common stalk, with c by far the smallest of the three. In *Psaphodesmus* (Fig. 7) process e is small and located at the base of the (a,b,c) common stem, d originates at the same level as e on the lateral side of the telopodite. In *Parazodesmus* (Fig. 6) process e is as large as d and the two are not basally syntopic. Of the two, *Psaphodesmus* appears more similar to *Petalorhacus* in gonopod structure, but neither has anything remotely approaching the (a+b+c) shape of the latter.

A revision of *Parazodesmus* (eight species in the Solomons and New Britain) in currently in press; a similar treatment of *Psaphodesmus* (four nominal species in the Moluccas) is in preparation. The gonopods of a representative of each genus are illustrated here to illustrate the several details discussed in the preceeding paragraph. The point is clearly made that simply the presence of particular processes *per se* does not constitute a species-group; it is the size and location of the processes that is important, as the drawings demonstrate.



Petalorhacus morobe, n. sp. Fig. 4. Left gonopod, mesal aspect, showing shorted and broadened common stalk of processes a. b, and c, reduced process e, and elongated, dislocated process d typical of this genus. Fig. 5. The same gonopod, apical half of telopodite, lateral aspect, enlarged, with apex of process d shown in another aspect.

Petalorhacus morobe, new species
Figures 1-5

Material: Male holotype (Naturh. Mus. Wien), labeled "Nova Guinea: zwisch. Poyu û Tawa (Poyu 10 m. Aseki, Tawa 13 m. von Kaintiba), 27-IX-1972, J. Eiselt don." Poyu and Tawa are too small to appear on any map; Aseki (7°21'S, 146°12'E) and Kaintiba (7°30'S, 146°02'E) are located 65-70 km west of Wau, Morobe District, Papua New Guinea.

Diagnosis: With the characters of the genus.

Holotype: Adult male, broken and curved, approximately 48 mm long; maximum width

7.8 mm at segment 8; width of collum, 5.3 mm, of 2nd segment, 7.0 mm; of 6th segment, 7.6 mm, of 10th-15th segments, 7.7 mm; of 16th segment, 7.6 mm, of 18th segment, 6.9 mm. L/W ratio ~ 16%. Original coloration altered by alcohol, at present generally light brown with prozona a little darker, legs and sterna lighter.

Head evenly granulose, unmodified, genal impressions very shallow. Collum relatively narrow, laterally declivent, of the form shown in Fig. 1, with distinct anterior and posterior marginal rows of rounded tubercles, and two irregular rows across disk. Second segment with paranota much broader than collum, also strongly declivent; metazona of segments 2 - 16 subsimilar, surface dense set with two sizes of granules and three transverse series of large rounded tubercles, all about equally prominent, becoming smaller on posteriormost terga. Paranota relatively small and continuing slope of dorsum, thus imparting a distinctly convex facies to the body form, width/height ratio 70% at segment 10; shape on most segments as shown in Fig. 2, anterior and posterior edges smooth, lateral edge with 4-5 small dentations between corners; ozopores located on lateral edge. Paranota of last several segments triangularly produced posteriad, somewhat more strongly tuberculate than at midbody (Fig. 3); epiproct broadly rounded, not constricted basad.

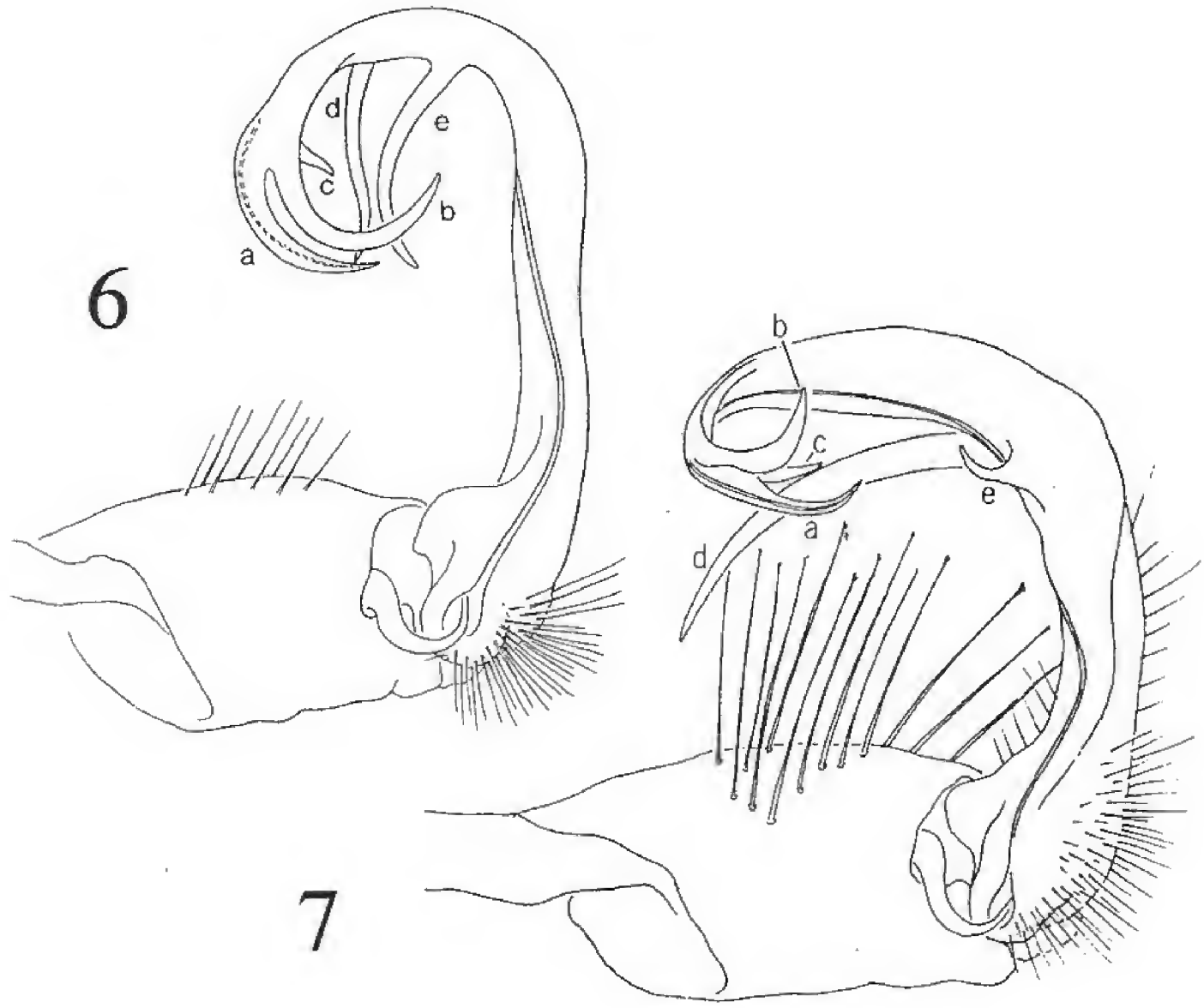


Fig. 6. *Parazodesmus schistogon* Chamberlin, left gonopod, mesal aspect, showing subequal processes d and e, enlarged b and unmodified coxal setae typical of this genus. Fig. 7. *Psaphodesmus annectens* (Humbert & DeSaussure), left gonopod, mesal aspect, showing clustering of processes a, b, and c, at the end of a long common stalk; also the elongated process d, reduced process e and enlarged penicillate coxal setae typical of this genus.

Paraprocts and hypoproct of normal platyrhacid form; sterna relatively narrow (1.6 mm near midbody), about equal to length of a femur, medially depressed, setose, elevated at base of coxae but not produced into spines. Legs short, uniformly set with short, curved, laciniate setae as well as with much longer, straight setae dispersed on ventral surfaces. Sides of metazona finely granulate with a small projection above posterior coxae; stigmata large and auriculate, almost in contact, the posterior extending slightly farther dorsad.

Gonopod aperture rounded-oval, edges elevated adjacent to coxae of 8th legs. Gonopods as described under the generic heading and illustrated (Figs. 4, 5), notable for modification of the (a+b+c) common stem.

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